ARTÍCULO ORIGINAL

Gac Méd Caracas 2021;129(Supl 1):S184-S194
DOI: 10.47307/GMC.2021.129.s1.21

Gender, affectivity, and behaviors of psychosocial and health risk in adolescents of Tamaulipas, Mexico

Género, afectividad y comportamientos de riesgo psicosocial y a la salud en adolescentes de Tamaulipas, México

Luz Adriana Orozco Ramírez[1], José Luis Ybarra Sagarduy[2], Adrián Alberto Andaverde Vega[3]

SUMMARY

Introduction: *Gender differences in the experience and handling of emotionally charged events and stimuli can be a factor in the prevalence of psychosocial and health risk behaviors in adolescents, but little has been studied about the interaction between gender, affectivity, and risk behaviors.*
Objective: *The present study evaluates the relationship between risk behaviors for health, gender, and affective style in a sample of 2008 adolescents aged 10-19 years.*
Methods: *An ex post facto retrospective study with a single group and multiple measures, the Positive and Negative Affection Scale (PANAS), and a list of Adolescent Risk Behaviors were used with a sample of young people from 12 sanitary jurisdictions in Tamaulipas, México.*
Results: *The results indicate that men have a higher prevalence of total risk behaviors and substance use than women. Only in personal image women present more risk than men. Negative affectivity and gender are predictive variables of total risk and risk of substance use. For personal image risk, the predictive variables are negative affectivity and the interaction between negative affectivity and gender.*
Conclusion: *It is important to implement programs for the prevention of risk behaviors in adolescents including strategies related to the management of negative affectivity that considers gender differences.*

Keywords: *Gender, adolescents, affectivity, risk behaviors, health.*

DOI: https://doi.org/10.47307/GMC.2021.129.s1.21

ORCID: 0000-0003-1073-5855[1]
ORCID: 0000-0001-6405-169X[2]
ORCID: 0000-0003-1323-7974[3]

[1]*Autonomus University of Tamaulipas-México.*
E-mail: lorozco@docentes.uat.edu.mx
[2]*Autonomus University of Tamaulipas-México.*
E-mail: jsagarduy@docentes.uat.edu.mx
[3]*Autonomus University of Tamaulipas-México.*
E-mail: aandaverde@docentes.uat.edu.mx

*Corresponding author: José Luis Ybarra Sagarduy. Unidad Académica de Trabajo Social y Ciencias Para el Desarrollo Humano. Universidad Autónoma de Tamaulipas, Centro Universitario "Adolfo López Mateos". Ciudad Victoria, Tamaulipas, C.P. 87000 (México). Teléfono: (+52) 834-318-1800. E-mail: jsagarduy@docentes.uat.edu.mx

Recibido: 20 noviembre 2020
Aceptado: 28 de enero 2021

RESUMEN

Introducción: *Las diferencias de género en la experiencia afectiva pueden ser un factor en la prevalencia de conductas psicosociales y de riesgo para la salud en adolescentes, sin embargo, se ha estudiado poco la interacción entre género, afectividad y conductas de riesgo.*
Objetivo: *Evaluar la relación entre las conductas de riesgo para la salud, el género y el estilo afectivo en una muestra de 2008 adolescentes de entre 10-19 años.*
Método: *Estudio ex post facto de tipo retrospectivo con un solo grupo y medidas múltiples, se aplicó la Escala de Afecto Positivo y Negativo (PANAS), y una lista de Conductas de Riesgo en Adolescentes a jóvenes de 12 jurisdicciones sanitarias del Estado de Tamaulipas, México.*
Resultados: *Los resultados señalan que los hombres*

presentan mayor prevalencia de conductas de riesgo y consumo de sustancias que las mujeres. Sólo en el área de la imagen personal las mujeres presentan más riesgo que los hombres. Las diferencias entre hombres y mujeres solo se encuentran en la afectividad negativa, obteniendo mayores puntuaciones las mujeres. La afectividad negativa y el género son variables predictoras de conductas de riesgo para la salud en general y del riesgo de consumo de sustancias. Para el riesgo de imagen personal las variables predictoras son la afectividad negativa y la interacción entre la afectividad negativa y el género.

Conclusiones: *Resulta importante implementar en los programas de prevención de conductas de riesgo dirigidos a adolescentes estrategias relacionadas al manejo de la afectividad negativa con perspectiva de género.*

Palabras clave: *Género, adolescentes, afectividad, conductas de riesgo, salud.*

INTRODUCTION

Emotions broaden thought and action repertoires and increase the available physical, psychological, and social resources to generate adaptive behaviors (1). Thus, positive emotions favor personal growth and social connection, and negative emotions indicate limits and dangers, favoring survival (2); meanwhile, the development of emotion managing skills allows awareness, identification, and regulation of one's feelings and behaviors (and those of others) (3,4).

Adolescence is a period in which profound changes in these functions, and the neurophysiological systems that underlie them, coincide with complex social situations that expose young people to different psychosocial and health risks (5-8). This is because at this developmental stage there is an increase in interest in exciting, pleasurable, or novel activities, while cognitive functions that would regulate these behaviors, such as impulse inhibition or control, are relatively immature (8-10).

For example, in Mexico, 23 % of men and 20.5 % of women, between 12 and 19 years old, have already begun their sexual life, 80.6 % and 61.5 % respectively reporting the use of condoms (11). On the other hand, in 2016 the combined prevalence of overweight and obesity was 33.5 % in men, and 39.2 % in women, while 82.6 % of them reported spending more than two hours a day in front of a screen, being physical inactivity a factor in overweight and obesity (12). Also, 8.3 % of adolescents report having suffered an accident, and 4.4 % of men and 3.4 % of women, report having suffered physical violence (11).

Studies indicate that adolescents' affectivity has been related to social integration (13), psychological adjustment and behavioral problems (14), self-esteem (13, 15), academic performance (16), risks of health (17) sexual risks (18), substance use (19) and even risk of road accidents (20).

On the other hand, associated with the increase of risk behaviors in adolescents, differences have been reported between men and women in the maturation of socio-emotional systems and other systems of behavior regulation, affecting how both sexes process emotions and act on them (21,22). For example, women tend to express more feelings of anxiety, worry, fear, and sadness (23-25), and they perceive stressors as more severe (26); whereas men report greater daily stressors and less chronic stress, describe their life events as more positive and controllable, and present less psychological stress and somatic symptoms (27,28).

It has also been reported that, when they are in an emotional state, positive or negative, men and women process information and respond in different ways. It has been found, for example, that women pay more attention to details when they find themselves sad (29) and, in this emotional state, process positive events slower; this same effect occurs in men in a state of anger (as opposed to sadness) (30). In addition, when experiencing negative emotions, women seek to counteract with positive emotions, tend to rumination, verbalization to seek social support, and positive self-instruction (31) whereas men use distraction strategies (32), tend to suppress emotions, and seek to handle them in a more rational and detached manner (27).

Finally, another difference between men and women influenced by affectivity (33-35), seems to be in the management of risks (36,37) although see also (38,39). Thus, gender differences in the experience and handling of affectively charged events and stimuli can be a factor in the prevalence

of psychosocial and health risk behaviors in men and women, but, as far as we know, little has been studied, especially in Mexican adolescents, about the interaction between gender, affectivity, and risk behaviors (20).

Since programs aimed at-risk behaviors in adolescents in Mexico do not have a gender perspective, nor do they consider affectivity as a variable that can predict these behaviors, it is important to investigate these factors. For this reason, our research question is: will affectivity and gender be predictive variables of the presence of psychosocial risk behaviors and health in adolescents from northeastern Mexico?

Therefore, the objective of this study was to identify the relationship between health risk behaviors, gender, and affectivity. It is based on the hypothesis that the type of affectivity predicts psychosocial risk behaviors and health in Mexican adolescents and is different with respect to gender. A complete understanding of how affective differences between young men and women are related to psychosocial and health risks would contribute to their more effective reduction and prevention.

METHODS

Design

It is an ex post facto retrospective study with a single group and multiple measures (40).

Population and sample

The study's population was adolescents from Tamaulipas, a state in northeastern Mexico, between the ages of 10 and 19 (mean=15.04). Middle and upper secondary students from the twelve health jurisdictions in which the state is divided were selected, obtaining a sample of 2008 adolescents (47.4 men and 52.6 % women).

Instruments

1. The Positive and Negative Affect Scale (PANAS) (41) is composed of two factors of 10 items each, designed to measure positive affect (AP) and negative affect (AN). The items have a Likert format with a range of 4 points, varying from 0 (very slightly or not at all) to 4 (extremely). Estimates of internal consistency vary from 0.86 to 0.90 for the Positive Affect scale, and from 0.84 to 0.87 for the Negative (41). Validation in the Mexican population provides evidence of internal consistency, as well as structural and construct validity of the bifactorial model of affect (42).
2. List of Risk Behaviors in Adolescents that derives from the research of Valverde, et al. (43). It is an instrument that consists of a list of 39 risk factors and behaviors in the areas of academic and work environment (e.g., "leaving school"), use of free time, recreation and sports (e.g., "not playing sports"), personal image and feelings (e.g., "never feeling comfortable with yourself"), illegal and legal substance use (e.g., "having tried alcoholic beverages"), sexuality and sexual and reproductive health (e.g., "never having used a condom in case of having had sexual intercourse"), violence and problems with the law (e.g.," getting involved in a first fight") and safety (e.g.," not wearing a seatbelt when traveling with a passenger in a car"). The adolescent must indicate whether he or she has performed or presented some of the behaviors in the list by answering true or false to each sentence. This list allows us to obtain risk indexes in each of the areas already mentioned.

Procedures

A permit was requested from the Secretary of Health of the State of Tamaulipas, obtaining approval by the research ethics committee of said institution. Subsequently, the researchers met with those responsible for comprehensive adolescent health programs of the 12 health jurisdictions of the state and personnel from those jurisdictions were trained to apply the instrument to the sample in each jurisdiction. The instrument was applied to the groups during class time, and without the presence of the teacher, the person in charge of the program read the instructions to the participants, where they were told that the information obtained would be

treated confidentially and solely and exclusively for research purposes, obtaining their signed informed consent.

The Project was approved by the National Science and Technology Council (CONACyT) and, through Teenage Attention Modules of the Public Health Department (Secretaría de Salud Pública), psychology personnel were trained on the administration of the instrument. As a first step, consent was required from parents or tutors, explaining the objective of the study and the confidentiality of the data; 100 % of parents/ tutors agreed to their son/daughter participation.

As a second step, instrument administration took place in the classrooms of schools where Teenage Attention Modules were present, 100 % of teenagers agreed to participate. Instruments' administration took approximately 45 minutes.

Statistical analysis

For the data analysis, the IBM SPSS Statistics 22 program was used. At first, the descriptive statistics of the variables of interest, i.e., affect and risk behaviors, were obtained. It was checked whether these variables followed a normal distribution with the Kolmogorov-Smirnov test and, for the cases of variables that did not have a normal distribution, a logarithmic transformation was performed to normalize them. Gender differences in the study variables were evaluated with the Student's T-test and the effect size *d* was calculated with Cohen's. By convention *ds* of 0.2, 0.5, and 0.8 were considered small, medium, and large, respectively. The relationship between affect (positive and negative) and the different risks were analyzed with the Pearson correlation coefficient, both for the total sample and for men and women. A significance level of 0.05 were used. Finally, multiple linear regression models were obtained by successive steps, where the dependent variables are the variables related to risk behaviors and the independent variables are gender, affectivity, and the interaction between gender and affectivity.

RESULTS

The sample (n= 2008) comprehends 47.4 % men and 52.6 % women, with an average age of 15.04 (SD= 1.75) (Table 1). By age ranges, there is 24.3 % of the sample in the initial adolescence (10-13 y.o.), 56.3 % in the middle adolescence (14-16 y.o.), and 20.4 % in the late adolescence (17-19 y.o.). 52.6 % of the sample is in secondary

Table 1

Sociodemographic characteristics of the sample

Sociodemographic variables (n= 2008)	Descriptive data
Gender	
Male	47.4 %
Female	52.6 %
Age	Mean=15.04; S.D.=1.75
Age Range	
Early adolescence (10-13 y.o.)	24.3 %
Average adolescence (14-16 y.o.)	20.4 %
Late adolescence (17-19 y.o.)	55.3 %
School grade	
Middle School	52.6 %
High School	47.0 %
Type of population	
Rural	43.3 %
Urban	56.7 %
Type of family	
Uniparental	10.9 %
Nuclear	58.7 %
Extensive	25.2 %
Others	5.2 %
Practice some religion	
No	43.0 %
Yes	57.0 %
Religion	
Catholic	68.7 %
Christian	22.0 %
Jehovahs witness	3.0 %
Mormons	0.8 %
Others	0.3 %
No specific	5.1 %
Have some medical condition	
No	92.1 %
Yes	7.9 %
Have received psychological treatment	
No	88.0 %
Yes	12.0 %

Source: self-made

education (12th, 13th, and 14th grades), and 47.0 % in high school (15th, 16th, and 17th grades). The urban population is predominant (56.7 %), as is living in nuclear families (58.7 %). Only 57 % of adolescents indicate that they practice any religion, with Catholicism predominating (68.7.%). Finally, 7.9 % indicate that they have some medical condition, and 12.0 % have received psychological treatment.

Cronbach´s alpha for the Positive and Negative Affect Scale (PANAS) was α= 0.80, and for the subscales of positive affect α= 0.81 and negative affect α= 0.86. Reliability of List of Risk Behaviors in Adolescents was calculated with the Kuder Richardson method with a result of 0.96.

Table 2 shows the means (M), and standard deviations (SD) of the variables affect (positive and negative) and risk behaviors (total risk, academic, and occupational risk, use of free time, personal image, substance use, sexuality, and sexual health, violence, and security). It was observed that all the variables present a normal distribution, except the variables total risk, risk in the use of free time, risk in relation to personal image, and risk about safety. A logarithmic transformation of these variables was made, showing that they already were normally distributed.

As detailed in Table 2, a significant difference was found in total risk between men (M= 8.52, SD= 6.62) and women (M= 7.29, SD= 6.30). The most frequent psychosocial risks for men were substance use (M= 2.74, SD= 2.87), use of free time (M= 1.6, SD= 1.06), and sexuality and sexual health (M= 1.05, SD= 1.38). For women, the most frequent psychosocial risks were substance use (M= 2.15, SD= 2.53), use of free time (M= 1.35, SD= 1.01), and risk in relation to personal image (M= 1.25, SD= 1.68).

Gender differences in the studied variables were evaluated (Table 2), showing differences in all of them except in "positive affect" where there are no differences between men and women (P> 0.05). Women show greater negative affectivity than men (t= 5,608, P= 0.001, *d*= 0.25) and greater risks related to personal image (t= 4,849, P= 0.001, *d*= 0.23). Men present more total risk (t= -5.281, P= 0.001, *d*= 0.19), academic and occupational risk (t= -7.665, P= 0.001, *d*= 0.34), risk in relation to the use of free time (t= -5.458, P= 0.001, *d*= 0.24), risk of substance use (t= -4.798, P= 0.001, *d*= 0.22), risk in sexuality and sexual health (t= -2.641, P= 0.001, *d*= 0.12) and risk in relation to violence (t= -8.138, P= 0.008, *d*= 0.35) and safety (t= -2.651, P= 0.008, *d*= 0.13).

The relationships between the variables of interest were analyzed, both in the total sample and in men and women. In the total sample, a correlation was observed between the negative affect and the total risk (r= 0.228, P<0.001) and the risk related to the personal image (r= 0.290, P <0.001), although they are low correlations. In women, this relationship between negative affect and total risk is maintained (r= 0.292, P <0.001) as well as in the risk of personal image (r= 0.326, P <0.001), and was also observed with the risk of substance use (r= 0.220, P <0.001). In the case of men, there is no relationship between negative affect and total risk, but there is with the risk related to the personal image (r= 0.220, P <0.001) and with the risk of substance use (r= 0.203, P<0.001). There is no relationship between positive affectivity and the different risks.

Multiple linear regression models were obtained for total risk, risk related to personal image, and risk related to substance use (Table 3). In the case of total risk, predictor variables are gender (β= -0.150) and negative affectivity (β= 0.248), without the interaction between gender and negative affectivity being significant. For the risk related to the personal image, negative affectivity (β= 0.225) and the interaction of this variable with gender (β= 0.112) are significant, but not gender by itself; for the risk in relation to the consumption of substances, gender (β= -0.138) and negative affectivity (β= 0.211) were significant, but not the interaction of the two variables. The variances predicted by all the models are significantly higher than the expected by chance (P= 0.001) and the indicators of goodness of fit were optimal, since the Durbin-Watson statistics were within the expected range, between 1 500 and 2 500, which allows us to affirm that there is the independence of the residues, whose average was zero. On the other hand, the variables do not show low tolerance values and a high variance inflation factor, so there is no suspicion of collinearity in any of the cases.

Table 2

Descriptive results of affective variables and psychosocial and health risk behaviors in the total sample divided into male and female adolescents

	Total Sample		Male		Female			
	M	SD	M	SD	M	SD	t	Sig.
Positive affectivity	24.08	7.23	24.27	7.28	23.91	7.19	-1.08	0.28
Negative affectivity	12.33	7.68	11.3	7.25	13.24	7.93	5.608	0.001
Total risk	0.81	0.34	8.52	6.621	7.29	6.305	-5.281	0.001
Academic and occupational risk	0.55	0.76	0.69	0.787	0.43	0.713	-7.665	0.001
Risk use of free time	0.35	0.20	1.6	1.06	1.35	1.012	-5.458	0.001
Personal image risk	0.23	0.27	0.91	1.385	1.25	1.681	4.849	0.001
Substance use risk	2.42	2.72	2.74	2.879	2.15	2.534	-4.798	0.001
Risk sexuality and sexual health	0.98	1.33	1.05	1.383	0.9	1.25	-2.641	0.001
Violence risk	0.75	1.25	0.99	1.358	0.54	1.104	-8.138	0.008
Security risk	0.05	0.13	0.22	0.512	0.427	0.427	-2.651	0.008

Source: self-made

Table 3

Models of linear regression of total risk, risk of the personal image, and risk related to the consumption of substances

		β	t	P	Collinearity		Durbin-Watson	F	R^2
					IT	FIV			
Total Risk	Gender	-0.150	-6.823	0.001	0.984	1.016	1.769	F [2.1934] = 78.053; P =0.001	0.075
	Negative Affectivity (NA)	0.248	11.242	0.001	0.984	1.016			
Personal Image Risk	Negative Affectivity (NA)	0.225	8.406	0.001	0.652	1.533	1.895	F [2,1935] = 99.145; P =.000	0.093
	Gender*NA	0.112	4.166	0.001	0.652	1.533			
Substance Use Risk	Gender	-0.138	-6.178	0.001	0.984	1.016	1.735	F [2, 1936] = 57.350; P =0.001	0.056
	Negative Affectivity (NA)	0.211	9.459	0.001	0.984	1.016			

Source: self-made

DISCUSSION AND CONCLUSIONS

Results indicate that affectivity is important when it comes to addressing the study of psychosocial risk behaviors and adolescent health. This study finds, as a first point, that there are no statistically significant gender differences related to positive affectivity, however, women have a greater negative affect than men, which agrees with Sandin (44) that found no differences between boys and girls related to positive affectivity but did in relation to negative affectivity. On the other hand, these results coincide with other studies indicating that women tend to express more feelings of anxiety, worry, fear, and sadness (23-25,45).

In terms of risk behavior, men present a higher total risk, as well as academic and occupational risk, risk in the use of free time, substance use, sexuality and sexual health, and risk of violence and safety than women. Several studies report the presence of greater risk behaviors in men than in women, for example, the early onset of sexual relations, the non-use of condoms, and having sexual relationships under the influence of psychoactive substances (46-48). In this regard, Orr, Beiter and Ingersoll (49) suggest that early sexual experience among adolescents is associated with other risk behaviors, for example for young women's cannabis consumption and, for young men cannabis and other drugs (not alcohol). Also, early sexual activity was associated with higher participation in illicit activities and academic problems. About the risk of substance abuse, Goncy and Mruy (50) and Nolen and Hilt (51) explain that adolescent men are at higher risk of alcohol consumption than adolescent women because of psychosocial factors such as less sanctions for alcohol consumption, positive expectations of alcohol consumption and higher impulsivity. An explanation of this is found in the model proposed by Palacios (52) that indicates that self-efficacy can prevent adolescents from engaging in risk behaviors and posits that if the risk is higher in adolescent males than in females, it is because women have a higher self-efficacy in six dimensions: self-efficacy to avoid the use of tobacco, alcohol, and drugs, avoiding damage to their health, rejecting risky sexual behaviors, and avoiding antisocial behaviors than men.

In women, there was a greater frequency of risk behaviors in the area of personal image, which coincides with the results obtained by a study conducted with 896 adolescents from the State of Morelos, Mexico, where men were found to have a thinner self - image, whereas women perceive themselves as thicker; the latter indicating greater concern for gaining weight, which suggests that in idealizing thinness, very typical of Western cultures, they adopt compensatory behaviors such as fasting and dieting, more frequently than men. (53). An example of the effects of culture on psychosocial risks is the study by Croll et al. (54) which, with an n=81.247, reports a higher frequency of eating-related risks (weight control, fasting, dieting, using laxatives, vomiting and binge eating) for women than men in Hispanic and American Indian youth, and with differences in protective factors across ethnicity amongst females. In Mexico, other studies have been carried out that are consistent with those reported here (55,56).

Also, the results of this study indicate that there is a significant relationship between negative affect and total risk, and risk in personal image in the total sample. This relationship is relevant since in Mexico the indexes of overweight and obesity in adolescents have been increasing. For this reason, it is important to include the management of negative affectivity in adolescents in prevention programs of these diseases and to address the differences of gender in the management of said affectivity. When dividing the groups by gender, the relationship between negative affect and total risk is maintained in women, but not in the case of men. In this regard, negative affectivity is characterized by sensations of aversive emotional states. And so, the presence of negative affect in adolescent women has been related to experiences of negative feelings such as fear or anxiety, sadness or depression, guilt, hostility, and dissatisfaction; negative attitudes and pessimism; problems or somatic complaints; and dissatisfaction and negative appreciation of oneself and others (57). Therefore, the expression of negative affectivity could generate more vulnerability to psychosocial and health risk behaviors in adolescent women.

In both men and women, there is a significant relationship between negative affect and risk in substance use. These results coincide with the

results of the study done by Myers et al. (58) where they indicate that negative affectivity is positively related to the use of substances in adolescents; using a model of structural equations they found that the use of substances in adolescents is associated with having a lower grade point average, being male, being white, having higher levels of negative affectivity and lower levels of social anxiety. Likewise, another study conducted with male adolescents found that negative affectivity was positively related to drug use, but only for individuals who exhibit greater antisocial behavior among peers (59). It should also be mentioned that adolescence is a period of transit and experimentation, where alcohol consumption is easily accessible and widely accepted (60). Therefore, this tolerance or normalization of alcohol consumption in the Mexican culture could contribute to a lower perception of the risk that its consumption implies (61), and, in the adolescents of this study, it is related to their negative affectivity.

It is worth mentioning that in this study, positive affectivity was not related to the different types of risk. An example of this is the implications of the findings of Ruvalcaba et al. (62) with Mexican adolescents from Guadalajara who suggest that prosocial behaviors, accompanied by emotional communication from the mother, are elements that predict almost 25 % the capacity of the adolescent to self-manage positive emotions, where these variables can be considered as a specific protective factor against possible disorders of the affective life and as a promoter of healthy development of the adolescent.

Finally, the predictors of total risk were gender and negative affect, but not the interaction between gender and affectivity. This agrees with other studies that mention gender and emotion management as predictors of adolescent risk behaviors (17-20,45,57). In this regard, the model proposed by Bandura et al. (63) points out that a strong sense of effectiveness in managing positive and negative emotional life contributes to perceived self-efficacy to perform protective behaviors such as taking charge of academic activities, avoiding the pressures of classmates for transgressive behavior and feeling empathy for the experiences of others; related to this, there is a notable pattern of gender differences in the self-evaluation of effectiveness, and so, compared to adolescent males, women show a greater sense of efficacy in managing academic activities, reject peer pressure for transgressive behavior, experience empathy for the feelings and experiences of others, and express positively in their interpersonal relationships. However, adolescent women doubt their effectiveness in managing negative affective states. These differential patterns of perceived self-efficacy are accompanied by different styles of adaptation to various situations and risk behaviors.

Likewise, our results indicate that for the risk related to personal image the predictive variables are gender and negative affectivity, in this respect, as we mentioned earlier, in women the most culturally acceptable handling and expression of their negative emotions makes them more vulnerable to present risk behaviors related to their body image than men. This is confirmed by the interaction between gender and negative affectivity as a predictor of risk behavior related to personal image. For the risk related to substance use, the predictive variables were gender and negative affect, but not the relationship between the two. These results confirm how adolescent's emotions have an important impact on basic cognitive processes, including decision making and the choice of behavior (8).

Therefore, the main findings of this study are that men have a higher prevalence of total risk behavior than women. Only around personal image women present more risk than men. Negative affectivity and gender, and not the interaction between them, are predictive variables of the total risk and the risk of substance use. For the risk of personal image, the predictor variable is negative affectivity and the interaction between gender and negative affectivity.

This leads us to reflect on the factors that should be considered in the prevention of psychosocial risk behaviors and promotion of adolescent's health. And on the role of negative affectivity as a very important variable to consider in activities of prevention of psychosocial and health risks, due to the relationship that exists with social processes, decision making, and self-efficacy in the adolescent stage; it is, therefore, recommended that programs promoting healthy behaviors in adolescents should have an inclusive approach, considering biological, ethical, affective, social,

and cultural aspects with a focus on gender and sexual rights.

A limitation of the study was that the instrument used to evaluate affectivity has a two-dimensional structure (positive affect and negative affect), and its factors are independent of each other, which does not allow it to be analyzed in greater depth; therefore, it is suggested in future studies to use complementary instruments; it would also be advisable to address the self-efficacy variable as a predictor of risk behaviors.

Acknowledgments

We thank the Secretary of Health of the State of Tamaulipas, especially the Coordination of adolescent care modules for their collaboration in this project.

REFERENCES

1. Vecina-Jiménez ML. Emociones Positivas. Pap Psicol. 2006;27(1):9-17.
2. Moriondo M, De Palma P, Medrano LA, Murillo P. Adaptación de la escala de afectividad positiva y negativa (PANAS) a la población de adultos de la ciudad de Córdoba: análisis psicométricos preliminares. Univ Psychol. 2012;11(1):187-196.
3. Buckley M, Saarni C. Emotion regulation: Implications for positive youth development. In: Furlong MJ, Gilman R, Huebner ES, et al. Handbook of positive psychology in schools. New York: Taylor & Francis; 2014.p.99-114.
4. Mayer JD, Caruso DR, Salovey P. The ability model of emotional intelligence: Principles and updates. Emot Rev. 2016;8(4):290-300.
5. Coppari N, Barcelata BE, Bagnoli L, Codas G. Efectos de la edad, el sexo y el contexto cultural en la disposición resiliente de los adolescentes de Paraguay y México. Rev Psicol Clín Niños y Adolescentes. 2018;5(1):16-22.
6. Ortuño-Sierra J, Fonseca-Pedrero E, Paíno M, Aritio-Solana R. Prevalencia de síntomas emocionales y comportamentales en adolescentes españoles. Rev Psiquiatr Salud Ment. 2013;7(3):121-130.
7. Hessler DM, Katz LF. Brief report: Associations between emotional competence and adolescent risky behavior. J Adolesc. 2010;33(1):241-246.
8. Steinberg L. Cognitive and affective development in adolescence. Trends Cogn Sci. 2005;9(2):69-74.
9. Steinberg L. A dual systems model of adolescent risk-taking. Dev Psychobiol. 2010;52(3):216-224.
10. Casey BJ, Jones RM, Somerville LH. Braking and Accelerating of the Adolescent Brain. J Res Adolesc. 2011;21(1):21-33.
11. Gutiérrez JP, Rivera-Dommarco J, Shamah-Levy T, Villalpando S, Franco A, Cuevas-Nasul L, et al. Encuesta Nacional de Salud y Nutrición. Resultados Nacionales. Cuernavaca, México: Instituto Nacional de Salud Pública (MX); 2012.
12. Shamah-Levy T, Cuevas-Nasu L, Dommarco JR, Hernández-Ávila, M. Encuesta Nacional de Salud y Nutrición de Medio Camino 2016. Cuernavaca, México: Instituto Nacional de Salud Pública (MX). 2016.
13. Anto SP, Jayan C. Self-esteem and emotion regulation as determinants of mental health of youth. J Proj Psychol Ment Health. 2016;23(1):34-40.
14. Cobos-Sánchez L, Flujas-Contreras JM, Gómez-Becerra I. Inteligencia emocional y su papel en el ajuste psicológico en la adolescencia. An Psicol. 2017;33(1):66-73.
15. Cheung CK, Cheung HY, Hue MT. Emotional intelligence as a basis for self-esteem in young adults. J Psychol Interdiscip Appl. 2015;149(1):63-84.
16. Roeser RW, Eccles JS, Sameroff AJ. Academic and emotional functioning in early adolescence: Longitudinal relations, patterns, and prediction by experience in middle school. Dev Psychopathol. 1998;10(2):321-352.
17. Brown LK, Houck C, Lescano C, Donenberg G, Tolou-Shams M, Mello J. Affect regulation and HIV risk among youth in therapeutic schools. AIDS Behav. 2012;16(8):2272-2278.
18. Raffaelli M, Crockett LJ. Sexual risk-taking in adolescence: The role of self-regulation and attraction to risk. Dev Psychol. 2003;39(6):1036-1046.
19. Nichols T R, Mahadeo M, Brayant K, Botvin GJ. Examining anger as a predictor of drug use among multiethnic middle school students. J Sch Health. 2008;78(9):480-486.
20. Rhodes N, Pivik K. Age and gender differences in risky driving: The role of positive affect and risk perception. Accid Anal Prev. 2011;43(3):923-931.
21. Alarcón G, Cservenka A, Rudolph MD, Fair DA, Nagel BJ. Developmental sex differences in resting-state functional connectivity of amygdala sub-regions. Neuroimage. 2015;115:235-244.
22. Blanton R, Chaplin TM, Sinha R. Sex differences in the correlation of emotional control and amygdala volumes in adolescents. Neuroreport. 2010;21(14):953-957.
23. Mc Lean CP, Anderson ER. Brave men and timid women? A review of the gender differences in fear

and anxiety. Clin Psychol Rev. 2009;29(6):496-505.

24. Robichaud M, Dugas MJ, Conway M. Gender differences in worry and associated cognitive-behavioral variables. J Anxiety Disord. 2003;17(5):501-516.
25. Fischer AH, Rodriguez Mosquera PM, van Vianen AE, Manstead AS. Gender and culture differences in emotion. Emotion. 2004;4(1):487-494.
26. Tamres LK, Janicki D, Helgeson VS. Sex differences in coping behavior: A meta-analytic review and an examination of relative coping. Pers Soc Psychol Rev. 2002;6(1):2-30.
27. Matud MP. Gender differences in stress and coping styles. Pers Individ Differ. 2004;37(7):1401-1415.
28. Toufexis DJ, Myers KM, Davis M. The effect of gonadal hormones and gender on anxiety and emotional learning. Horm Behav. 2006;50(4):539-549.
29. Martin BA. The influence of gender on mood effects in advertising. Psychol Mark. 2003;20(3):249-273.
30. Glenberg AM, Webster BJ, Mouilso E, Havas D, Lindeman LM. Gender, emotion, and the embodiment of language comprehension. Emot Rev. 2009;1(2):151-161.
31. Day AL, Livingstone HA. Gender differences in perceptions of stressors and utilization of social support among university students. Can J Behav Sci. 2003;35(2):73-83.
32. Nolen-Hoeksema S. Emotion regulation and psychopathology: The role of gender. Ann Rev Clin Psychol. 2012;8:161-187.
33. Slovic P, Peters E. Risk perception and affect. Curr Dir Psychol. 2006;15(6):322-325.
34. Slovic P, Finucane ML, Peters E, MacGregor DG. Risk as Analysis and Risk as Feelings: Some Thoughts about Affect, Reason, Risk, and Rationality. Risk Anal. 2004;24(2):311-322
35. Slovic P, Peters E, Finucane ML, MacGregor DG. Affect, risk, and decision making. Health Psychol. 2005;24(4):35-40.
36. García-Gallego A, Georgantzís N, Jaramillo-Gutiérrez A. Gender differences in ultimatum games: Despite rather than due to risk attitudes. J Econ Behav Organ. 2012;83(1):42-49.
37. Croson R, Gneezy U. Gender differences in preferences. J Econ Lit. 2009;47(2):1-27.
38. Eckel CC, Grossman PJ. Men, women and risk aversion: experimental evidence. In: Plott C, Smith V, et al. Handbook of experimental economics results, Volume 1. North Holland: Elsevier B.V; 2008.p.1061-1073.
39. Nelson JA. Are women really more risk-averse than men? A re-analysis of the literature using expanded methods. J Econ Surv. 2015;29(3):566-585.
40. Montero I, León OG. A guide for naming research studies in Psychology. Int J Clin Health Psychol. 2007;7(3):847-862.
41. Watson D, Clark L, Tellegen A. Development and Validation of Brief Measures of Positive and Negative Affect: The PANAS Scales. J Pers Soc Psychol. 1988;54(6):1063-1070.
42. Moral J. La escala de afecto positivo y negativo (PANAS) en parejas casadas mexicanas. Ciencia Ergo Sum. 2011;18(2):117-125.
43. Valverde O. Adolescencia, protección y riesgo en Costa Rica: múltiples aristas una tarea de todos y todas. Encuesta Nacional de Conductas de Riesgo en los y las Adolescentes de Costa Rica. San José, Costa Rica: PAIA-CCSS. 2002.
44. Sandin B. Escalas PANAS de afecto positivo y negativo para niños y adolescentes. Rev Psicopatol Psicol Clín. 2003;8(2):173-182.
45. Gomez-Maquet Y. Cognición, emoción y sintomatología depresiva en adolescentes escolarizados. Rev Latinoam Psicol. 2007;39(3):435-447.
46. Antón F, Espada J, Soledad M. Autoconcepto y búsqueda en sensaciones como predictores de las Conductas sexuales bajo los efectos de las drogas en universitarios. Salud y Drogas. 2008;8(2):137-135.
47. Bermúdez M, Buela-Casal G, Teva I. Variables sociodemográficas y conductas de riesgo en la infección por el VIH y las enfermedades de transmisión sexual en adolescentes. Rev Esp Salud Publica. 2007;83:309-320.
48. Orcasita LT, Mosquera JA, Carrillo T. Autoconcepto, autoeficacia y conductas sexuales de riesgo en adolescentes. Informes Psicológicos. 2018;18(2):141-168.
49. Orr D, Beiter M, Ingersoll G. Premature Sexual Activity as an Indicator of Psychosocial Risk. Pediatrics. 1991;87(2):141-147.
50. Goncy EA, Mrug S. Where and when adolescents use tobacco, alcohol, and marijuana: comparisons by age, gender, and race. J Stud Alcohol Drugs. 2013;74(2):288-300.
51. Nolen S, Hilt L. Possible Contributors to the Gender Differences in Alcohol Use and Problems. J Gen Psychol. 2006;133(4):357-374.
52. Palacios JR. Estimación psicométrica de la escala de autoeficacia ante conductas de riesgo para adolescentes en México. Psychoso Interv. 2015;24:1-7.
53. Quintero AG, González R, Gutiérrez J, Puga R, Villanueva J. Prevalencia de conductas alimentarias de riesgo y síndrome metabólico en escolares adolescentes del estado de Morelos. Nutr Hosp. 2018;35(4):796-804
54. Croll J, Neumark D, Story M, Ireland M. Prevalence and risk and protective factors related to disordered eating behaviors among adolescents: Relationship to gender

and ethnicity. J Adolesc Health. 2002;31(2):166-175.

55. Nuño B, Celis A, Unikel C. Prevalencia y factores asociados a las conductas alimentarias de riesgo en adolescentes escolares de Guadalajara según género. Rev Invest Clín. 2009;61:286-293.
56. López-Atencio P, Molina Z, Rojas L. Influencia del género y la percepción de la imagen corporal en las conductas alimentarias de riesgo en adolescentes de Mérida. An Venez Nutr. 2008;21(2):85-90.
57. Robles R, Páez F. Estudio sobre la traducción al español y las propiedades psicométricas de las escalas de afecto positivo y negativo (PANAS). Salud Ment. 2003;26(1):69-75.
58. Myers MG, Aarons GA, Tomlinson K, Stein MB. Social Anxiety, Negative Affectivity, and Substance Use Among High School Students. Psychol. Addict Behav. 2003;17(4):277-283.
59. Shoal GD, Giancola PR. Negative affectivity and drug use in adolescent boys: Moderating and mediating mechanisms. J Pers Soc Psychol. 2003;84(1):221-233.
60. Jiménez TI, Musitu G, Murgui S. Funcionamiento familiar y consumo de sustancias en adolescentes: El rol mediador de la autoestima. Int J Clin Health Psychol. 2008;8(1):139-151.
61. Pascual F. Percepción del alcohol entre los jóvenes. Adicciones. 2002;14(1):123-131.
62. Ruvalcaba NA, Orozco MG, Gallegos J, Nava, JM. Relaciones escolares, comunicación con padres y prosocialidad como predictores de emociones positivas. Liberabit. 2018;24(2):183-193.
63. Bandura A, Vittorio G, Barbaranelli C, Gerbino M, Pastorelli C. Role of affective self-regulatory efficacy in diverse spheres of psychosocial functioning. Child Dev. 2003;74(3):769-782.